

THIRD ACCOUNT OF NEW VERTEBRATA FROM THE BRIDGER EOCENE OF WYOMING TERRITORY.

By EDWARD D. COPE.

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STYPOLOPHUS INSECTIVORUS. Cope. Sp. nov.

Represented by a posterior molar and a premolar of the right side of an animal less than half the size of the *S. pungens*, Cope. The molar presents three anterior trihedral acute tubercles, of which, one is exterior and more elevated than the others. Its posterior plane forms one transverse face with that of the inner posterior. The posterior tubercular heel is low, and supports an oblique ridge which bounds a deep groove behind the outer cusp, no doubt to receive that of the upper jaw. This arrangement is not seen in *S. pungens*. The premolar is a flat cone with faint traces of a tubercle behind and cingulum on inner side.

	M.
Length crown molar.....	0.0050
Height inner cusp.....	.0040
Length heel.....	.0025
Width crown.....	.0030
Height crown premolar.....	.0040
Length " ".....	.0040

Found in the Eocene Bad Lands of Black's Fork, by the writer.

STYPOLOPHUS BREVICALCARATUS. Cope. Sp. nov.

Established on a portion of the left mandibular ramus, containing the penultimate and ante-penultimate molars, of an animal of larger size than the type of the genus *S. pungens*. The molars have the general characters of the corresponding ones of that species, but differ in their greater elevation in comparison with their length, and the greater convexity of the outer side. The shortness is occasioned by the abbreviation of the heel, which in the last molar present, is very small and flat, without keel or tubercle on its surface. That of the molar preceding it is larger, and presents in its elevated outer margin, a trace of the keel seen in the smallest species. Enamel smooth.

	M.
Length of two molars.....	0.016
" " penultimate crown.....	.008
Width " " ".....	.0047
Length " " heel.....	.002

There is some relation between *Stypolophus* and *Triacodon*, Marsh. If the heel of the molars of the former were wanting, they would be those of the latter. The premolars might be supposed to have this structure, but the form seen in *S. insectivorus* disproves this view. In fact, I have seen both molars and premolars of *Triacodon aculeatus*, Cope, and the former lack the heel of the *Stypolophi* entirely.

MIACIS PARVIVORUS. Cope. Gen. et sp. nov.

Established on a portion of the right ramus mandibuli, containing portions of three molars, the penultimate being perfect. As in *Canidæ*, the molars diminish in size posteriorly, the last being single-rooted, the penultimate being two-rooted. The structure of that tooth is approximately that of *Stypolophus*, *i. e.*, with three trihedral cusps in front and a heel behind, but the cusps are of equal height, and their point of union not raised above the surface of the heel. This is a valley bounded by a sharp margin which is incurved to the outer cusp, leaving a vertical groove on the outer side, as in *Stypolophus* sp. This genus further differs from that one in the single-rooted small tubercular posterior molar, which is wanting in that one. The ante-penultimate molar is much larger than the penultimate. The crown of the latter is laterally expanded, and bears a cingulum at the base antero-externally. Enamel smooth.

	M.
Depth ramus at penultimate molar.....	0.0080
Length crown of “ “0040
Elevation “ “ “0025
Width “ “ “0033

Found on Black's Fork of Green River. An ally of *Stypolophus* and *Triacodon*.

TOMITHERIUM ROSTRATUM. Cope. Gen. et sp. nov.

Allied to *Notharctus*, Leidy. Dental formula $\frac{? ? ? ?}{2 \ 1 \ 4 \ 3}$, in an uninterrupted series. Last molars with five tubercles, others with four; all low and slightly alternating, the outer wearing into crescents. Canines quite small. Incisors very prominent, the median pair with transverse cutting edges. Symphysis coössified, projecting in front.

I base the distinction between this genus and *Notharctus* on the small canine, and the sub-horizontal position of the incisors; believing that when other portions of the skeleton are studied, other differences will appear. This, I have the opportunity of doing with material now in my hands.

The adjacent horns of the two outer crescents unite with the anterior outer tubercle; the posterior outer is insignificant. There is a projection but no tubercle in front of the outer anterior tubercle. The first and second premolars have but one root, the base of the second being about the size of the base of the canine. The latter are cylindric at base. The incisors form a parabolic outline, and have entire edges, the middle pair transverse ones. Enamel generally smooth, premolars somewhat striate; an indistinct inner cingulum.

	M.
Length of entire dental series (straight).....	0.044
“ symphysis mandibuli.....	.020
Depth ramus at second molar.....	.010
Length crown of “ “006

	M.
Width crown of second molar.....	.0045
“ between two “ “014
“ “ “ canines005

From near Black's Fork of Green River.

I would refer to *Notharctus*, my *Lophiotherium vasachiense*, adding the fifth species to the genus. These are *N. gracilis*, Marsh, *N. tyrannus*, Marsh, *N. tenebrosus*, Leidy, *N. robustior*, Leidy, and *N. vasachiensis*, Cope.

HADRIANUS ALLABIATUS. Cope.

This large land tortoise is nearer in general form to the *H. quadratus* than to the *H. octonarius*, but differs from both in the absence of the projecting lip of the anterior lobe of the plastron, which is thus simply truncate. The mesosternum is not cordate, but has much the shape of that of *H. quadratus*, that is, rhombic. The scutal sutures are deeply impressed. The plastron is strongly concave. Carapace without irregularities of the surface. Length eighteen inches.

From the Bad Lands of Cottonwood Creek, Wyoming.

EMYS LATILABIATUS. Cope.

Represented by a perfect specimen of a tortoise of a broadly oval form, and somewhat terrestrial habit. Its prominent characters are to be seen in the plastron, of which the posterior lobe is deeply bifurcate. The anterior lobe is peculiar in the unusual width of the lip-like projection of the clavicular ("episternal") bone, which is twice as wide as in *E. Wyomingensis*, and not prominent. Bones all smooth; margins of lobes of plastron thickened. Length of shell, one foot.

	M.
Width of lip of plastron.....	.06
Depth of posterior notch.....	.02

From near Black's Fork of Green River.

PROTAGRAS LACUSTRIS. Cope.

Gen. et sp. nov.

A serpent of about the size of the existing "Pine Snake" (*Pityophis melanoleucus*), and allied to the water-snakes of *Tropidonotus* and allied genera.

A vertebra before me has the longitudinal hypapophysial groove of that group, which terminates in a very obtuse point. The ball looks extensively upwards. The upper articular extremity of the parapophysis is short and obtuse, and the inferior equally so, and directed shortly downwards. The articular face being continuous with each other. It sends an obtuse keel backwards, which terminates in front of the ball. The angle connecting the diapophysis and zygapophyses is strong, while the former was narrow; in the specimens it is broken.

	M.
Length of centrum below.....	0.009
Depth to base neural spine, in front.....	.011
Width cup.....	.0054
Depth “.....	.0045
Expanse parapophyses above.....	.012
“ “ below.....	.008

From the Bad Lands of Cottonwood Creek, Wyoming.

ON A NEW GENUS OF PLEURODIRA FROM THE EOCENE OF WYOMING.

BY EDWARD D. COPE.

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The following observations are made with a view of establishing the stratigraphic position of the genus of tortoises described below. They were made by the writer while prosecuting a palacontological investigation of the Tertiaries of Wyoming for Dr. F. V. Hayden's Geological Survey of the Territories.

The strata exposed along the northern and eastern shores of Bear River, consist of alternate sandstone, argillaceous, and conglomerate rocks of the Wahsatch Group of Hayden. They dip to the northeastward. At the coal mines below (*i. e.*, N. W. of) Evanstown, the series is capped by a heavy bed of conglomerate. At a point seven miles above (*i. e.*, S. E. of) Evanstown, the strata appear in the following order: (1.) an argillaceous rock just appearing above the river level at high water; (2.) 25 feet of sandstone; (3.) a nodular argillaceous rock of a red and ochreous color, 15 feet; (4.) 10 feet of coarse conglomerate; (5.) 80 feet of sandstones and clays.

At a point eleven miles above Evanstown, the conglomerate has descended from view, and the bluffs of 300 feet in height, consist of the upper members of the group, viz.: red and white argillaceous beds; sandstone four to six feet in thickness; a red and white argillaceous stratum, at least forty feet; sandstone 3-4 feet, and a capping of a hard, brittle, ash-colored clay rock on the highest points. Ascending five miles further to the N. E., the strata are observed to dip in a direction opposed to those at Evanstown, rising gently to the N. E. One of the heavier sandstone strata is exposed about half way up the bluffs, and is visible in the side ravines. Crossing one of these, and climbing the opposite spur, a sandstone identical lithologically with those just described, is seen standing vertically; and succeeding spurs are crowned with the edges of the succeeding sandstone beds standing high in the air. Nearly opposite Beartown, a mile eastward on the Union Pacific Railroad, these vertical sandstones pass into a conglomerate, one of the strata being composed equally of both, a gradual lithological transition being exhibited.